

WHAT IS CLAIMED IS:

1. A method of optimizing an establishment of a communication connection between a mobile node and a correspondent node in a packet based communication network which includes a plurality of call session control function elements and a server of the mobile node constituting a communication subsystem infrastructure, the method comprising the steps of:

starting an application level communication connection setup procedure between the mobile node and the correspondent node via the communication subsystem infrastructure by transmitting and receiving application level signaling messages between the correspondent node and the mobile node;

transmitting, during the application level communication connection setup procedure, a trigger signal from an application layer to a network layer in the mobile node wherein the trigger signal comprises the address of the correspondent node; and

performing, in response to the trigger signal, a network level route optimization procedure during the application level communication connection setup procedure.

2. The method according to claim 1, wherein the packet based communication network comprises wireless communication network parts.

3. The method according to claim 1, wherein the network level is based on an IP based transport protocol.

4. The method according to claim 3, wherein the address of the correspondent node is an IP address.
5. The method according to claim 3, wherein the IP based transport protocol uses Mobile IPv6.
6. The method according to claim 5, wherein the server is a home agent.
7. The method according to claim 1, wherein the application level communication connection setup procedure is executed by using the session initiation protocol wherein the address of the correspondent node is provided to the mobile node in a session description protocol descriptor.
8. The method according to claim 1, wherein the network level route optimization procedure comprises a binding update procedure in which the care-of-address of the mobile node is transmitted to the correspondent node.
9. The method according to claim 1, wherein the step of performing the network level route optimization procedure comprises a step of initializing a network level route optimization on the mobile node side.
10. The method according to claim 9, wherein the step of performing the network level route optimization procedure comprises a step of initializing

a network level route optimization on the correspondent node side when an network level route optimization signaling from the mobile node is received.

11. The method according to claim 1, wherein the step of performing the network level route optimization procedure is completed before the application level communication connection setup procedure is completed.

12. The method according to claim 1, wherein the step of transmitting the trigger signal is performed via an interface provided between the application layer and a network level module in the network layer of the mobile node.

13. The method according to claim 12, wherein the interface is implemented by an application programming interface.

14. The method according to claim 12, further comprising a step of transmitting an acknowledgment from the network level module to the application layer after the trigger signal comprising the address of the correspondent node is received.

15. A system for optimizing an establishment of a communication connection between a mobile node and a correspondent node in a packet based communication network which includes a plurality of call session control function elements and a server of the mobile node constituting a communication subsystem infrastructure, the system comprising:

means for performing an application level communication connection setup procedure between the mobile node and the correspondent node via the communication subsystem infrastructure by transmitting and receiving application level signaling messages between the correspondent node and the mobile node;

means for producing and transmitting, during the application level communication connection setup procedure, a trigger signal from an application layer to a network layer in the mobile node wherein the trigger signal comprises the address of the correspondent node; and

means for performing, in response to the trigger signal, an network level route optimization procedure during the application level communication connection setup procedure.

16. The system according to claim 15, wherein the packet based communication network comprises wireless communication network parts.

17. The system according to claim 15, wherein the network level is based on an IP based transport protocol.

18. The system according to claim 17, wherein the address of the correspondent node is an IP address.

19. The system according to claim 17, wherein the IP based transport protocol uses Mobile IPv6.

20. The system according to claim 19, wherein the server is a home agent.

21. The system according to claim 15, wherein the means for performing the application level communication connection setup procedure use the session initiation protocol wherein the address of the correspondent node is provided to the mobile node in a session description protocol descriptor.

22. The system according to claim 15, wherein the means for performing the network level route optimization procedure execute a binding update procedure in which the care-of-address of the mobile node is transmitted to the correspondent node.

23. The system according to claim 15, wherein the means for performing the network level route optimization procedure initialize an network level route optimization on the mobile node side.

24. The system according to claim 23, wherein the means for performing the network level route optimization procedure initialize an network level route optimization on the correspondent node side when an network level route optimization signaling from the mobile node is received.

25. The system according to claim 15, wherein the means for performing the network level route optimization procedure complete the

network level route optimization procedure before the application level communication connection setup procedure is completed.

26. The system according to claim 15, wherein the means for transmitting and producing the trigger signal comprise an interface provided between the application layer and a network level module in the network layer of the mobile node.

27. The system according to claim 26, wherein the interface is implemented by an application programming interface.

28. The system according to claim 26, further comprising means for producing and transmitting an acknowledgment from the network level module to the application layer after the trigger signal comprising the address of the correspondent node is received.

29. A network node usable in a packet based communication network which includes a plurality of call session control function elements and a server of the network node constituting a communication subsystem infrastructure, wherein an establishment of a communication connection between the network node and a correspondent node in the packet based communication network is optimized, the network node comprising:

means for performing an application level communication connection setup procedure between the network node and the correspondent node via the communication subsystem infrastructure by transmitting and receiving

application level signaling messages between the correspondent node and the network node;

means for producing and transmitting, during the application level communication connection setup procedure, a trigger signal from an application layer to a network layer in the network node wherein the trigger signal comprises the address of the correspondent node; and

means for performing, in response to the trigger signal, a network level route optimization procedure during the application level communication connection setup procedure.

30. The network node according to claim 29, wherein the packet based communication network comprises wireless communication network parts.

31. The network node according to claim 29, wherein the network level is based on an IP based transport protocol.

32. The network node according to claim 31, wherein the address of the correspondent node is an IP address.

33. The network node according to claim 31, wherein the IP based transport protocol uses Mobile IPv6.

34. The network node according to claim 33, wherein the server is a home agent.

35. The network node according to claim 29, wherein the means for performing the application level communication connection setup procedure use the session initiation protocol wherein address of the correspondent node is provided in a session description protocol descriptor.

36. The network node according to claim 29, wherein the means for performing the network level route optimization procedure execute a binding update procedure in which the care-of-address of the network node is transmitted to the correspondent node.

37. The network node according to claim 29, wherein the means for performing the network level route optimization procedure initialize a network level route optimization on the network node side.

38. The network node according to claim 29, wherein the network level route optimization procedure is completed before the application level communication connection setup procedure is completed.

39. The network node according to claim 29, wherein the means for transmitting and producing the trigger signal comprise an interface provided between the application layer and network level module in the network layer of the network node.

40. The network node according to claim 39, wherein the interface is implemented by an application programming interface.

41. The network node according to claim 39, further comprising means for producing and transmitting an acknowledgment from the network level module to the application layer after the trigger signal comprising the address of the correspondent node is received.